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TITLE : HIGH TEMPERATURE HEAT SENSITIVE ELEMENT

ABSTRACT : PURPOSE: To stabilize the resistive value variations of a high temperature heat sensitive element with respect to high temperature load by adding  $\text{ZrO}_2$  to  $\text{MgO-Al}_2\text{O}_3\text{-Cr}_2\text{O}_3\text{-Fe}_2\text{O}_3$  solid solution having spinel crystalline structure.

CONSTITUTION: An uncalcined thermistor 1 is formed by the steps of adding  $\text{ZrO}_2$  ( $x + y + z = 1$ ,  $x : 3$  to  $4$ ,  $y : 5$  to  $6$ ,  $z : 1$  to  $2$ ) to main component of  $\text{Mg}(\text{Al}_x\text{Cr}_y\text{Fe}_z)_2\text{O}_4$  by 100:0.1 to 5.0 of molar ratio, mixing, temporarily calcining, pulverizing it using ceramic means, drying it, adding polyvinyl alcohol thereto to granulate it, and burying platinum wire 2 therein. Then, a thermistor element is formed by heating it at higher than  $1,600^\circ\text{C}$ . for 3 to 5 hours in calcination. This thermistor exhibits linear temperature-resistive value characteristics in actual range. When  $\text{ZrO}_2$  is not added to the thermistor thus contained, its resistive variation rate with respect to the high temperature load becomes large. If  $\text{ZrO}_2$  exceeds 100:5 of molar ratio with respect to the main component, the variation rate exceeds 10%, which is not preferable.

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